

Notice of Allowability

Application No.

10/629,035

Examiner

Elias Desta

Applicant(s)

QIAO ET AL.

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on March 1, 2005.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ The drawings filed on 28 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

Detailed Action

Response to Amendment

1. Applicant's arguments, see amendments and remarks filed on March 5, 2005 filed, with respect to claims 1, 5, and 13 (as amended) have been fully considered and are persuasive. The rejection of claims 1-17 has been withdrawn. The examiner accepts the newly added claim 18 and is proper.

Allowance

2. Claims 1-18 are allowed. The following is an examiner's statement of reasons for allowance

In reference to claims 1, 9 and 13: Borchers et al. (U.S. Patent 6,108,616) teaches a method of utilizing model based intelligent agents for diagnosing and isolating (or processing) malfunction or faults in a computer controlled machinery because the agents have to be interactive with the machinery in order to carry out the diagnostic function (see Borchers et al., column 1, lines 14-18 and column 2, lines 11-20) Further, these agents are designed in a software module. The method includes:

- Disposing (having) a plurality of intelligent agents (or autonomous or semiautonomous diagnostic agents) (see Borchers et al., Fig. 5). The plurality of these agents are disposed in a plurality of hierarchical levels, such as the 'slave', 'Agent A' and the 'Master' as noted in Borchers et al., Fig. 5. These agents are in communication with computer controllers of

the machinery or technical process and with each other (see Borchers et al., column 5, lines 43-53);

- The first hierarchical level (slave agent) collects and analyzes the given data in order to obtain a first level of a diagnostic information and the first level diagnostic information (data with respect to test result that is obtained by the slave agent) is communicated to the second hierarchical level (see Borchers et al., column 8, lines 59-66);
- The second hierarchical level performs a second level of diagnostic tasks on the first level of diagnostic information (i.e., information obtained from the first or slave agents) and communicates the resulting information to a third hierarchical level (Master Level) (see Borchers et al., column 8, line 65 to column 9, line 3); and
- The third intelligent agent or the Master at third hierarchical level performs a third level or final diagnostic tasks using the information obtained from the second level (Agent A) where the Master level of diagnostic tasks includes analyzing the second level (information from agent 'A') of a diagnostic information relative to reference information to accomplish fault isolation with in the machinery or technical process (see Borchers et al., column 9, lines 4-13).

The intelligent agents noted in Borchers et al. are semiautonomous where the low level (slave) agent obtains diagnostic information relative to the low level. The

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middle level agent is required only if the low level agent is incapable of diagnosing or catching the fault. Whereas the claimed invention provides hierarchical arrangement similar to *Borchers et al.*, but the data obtained from the low level (slave) and middle level or the information processed is distinctly different. For instance, the status data obtained from the low level agent is used by middle agent as an input to carry out further diagnostic process whereas *Borchers et al.* uses a semiautonomous approach where the middle agent actually performs the diagnosis based on the information output obtained from the lower level. Further, the claimed invention (in reference to claims 1 and 13) obtains a reference model from a remotely located database. Claim 9 further includes that the second level or middle level of the diagnostic tasks include recognizing at least one intelligent agent disposed in the first hierarchical level.

The remaining claims are dependent upon claims *1, 9 and 13* and contain further limitations.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Desta whose telephone number is (571)-272-2214. The examiner can normally be reached on M-Thu (8:30-7:00).

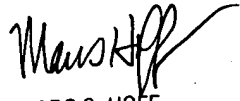
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)-272-2214. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)-272-1750.

Elias Desta
Examiner
Art Unit 2857

-ed

May 11, 2005


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800